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Deltosoma Thomson, 1864 of French Guiana (Coleoptera, Cerambycidae)

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(Coleoptera, Cerambycidae)

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Deltosoma Thomson, 1864 of French Guiana
(Coleoptera, Cerambycidae)

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Abstract. Two new species of *Deltosoma* Thomson, 1864 are described from French Guiana: *D. humeralis* **sp. nov.** and *D. fernandezi* **sp. nov.** *Deltosoma lacordairei* Thomson, 1864 is redescribed based on examination of the holotype. A study of the aedeagi of these three species was conducted. Dorsal habitus photographs of both sexes, ventral photographs of males, and aedeagi photographs are provided.

Résumé. Deux espèces nouvelles de *Deltosoma* Thomson, 1864 sont décrites de Guyane: *D. humeralis* sp. nov. et *D. fernandezi* sp. nov. *Deltosoma lacordairei* Thomson, 1864 est redécrit d'après l'holotype. Les édéages des trois espèces sont comparés. Des photographies des faces dorsales des deux sexes, ventrales des mâles et des édéages sont fournies.

Key Words. Neotropical region, new species, Pteroplatini, taxonomy.

Introduction

The genus *Deltosoma* was described by Thomson (1864), with the type-species *Deltosoma lacordairei* Thomson, 1864. Only four other species have been described since (Monné and Bezark 2012), all from the Neotropical region. Martins and Napp (2006) proposed the synonymy of *D. hovorella* Di Iorio, 2003 with *D. xerophila* Di Iorio, 1995. They examined a slide of the holotype of *D. lacordairei*, but the species illustrated is believed to be an undescribed species (misidentified by them as *D. lacordairei*). Heretofore, specimens of *Deltosoma* from French Guiana were believed to be variable and to belong to *D. lacordairei*. In available collections and on-line catalogues (Bezark, Giuglaris, Tavakilian and Chevillotte 2012), several distinct forms are presented. We obtained a large series (more than one hundred specimens) of this rarely collected genus, through an intensive field survey utilizing bait traps and rearing/emergence chambers. The series of specimens collected exhibits stable characteristics corresponding to three distinct taxa. These observations prompted the study of the holotype of *D. lacordairei* (female specimen deposited at MNHN). We conclude that the most common species collected was not *D. lacordairei* but a new species, *D. humeralis* sp. nov., as well as *D. fernandezi*, another less frequent new species. Comparison of the aedeagi confirmed our findings.

Materials

Acronyms and abbreviations used in the text are as follows:

CNRS	—	Centre National pour la Recherche Scientifique, Paris, France
FIT	—	Flight interception trap
FSCA	—	Florida State Collection of Arthropods, Gainesville, FL, USA
IRD	—	Institut pour la Recherche et le Développement, Marseille, France

JLGC	—	Jean-Louis Giuglaris private Collection, Matoury, French Guiana
JTC	—	Julien Touroult private Collection, Soyaux, France
MNHN	—	Muséum National d'Histoire Naturelle, Paris, France
NMNH	—	National Museum of Natural History, Washington DC, USA
MZSP	—	Museu de Zoologia, Universidade de São Paulo, Brazil
NR	—	National Reserve
ONF	—	Office National des Forêts, Paris, France
PHDC	—	Pierre-Henri Dalens private Collection, Rémire-Montjoly, French Guiana
pk	—	kilometric point, on the roads and tracks of French Guiana
SEAG	—	Société entomologique Antilles Guyane, Rémire-Montjoly, French Guiana
TRC	—	Thibaut Rosant private Collection, Saint-Jean du Maroni, French Guiana

Deltosoma lacordairei Thomson, 1864

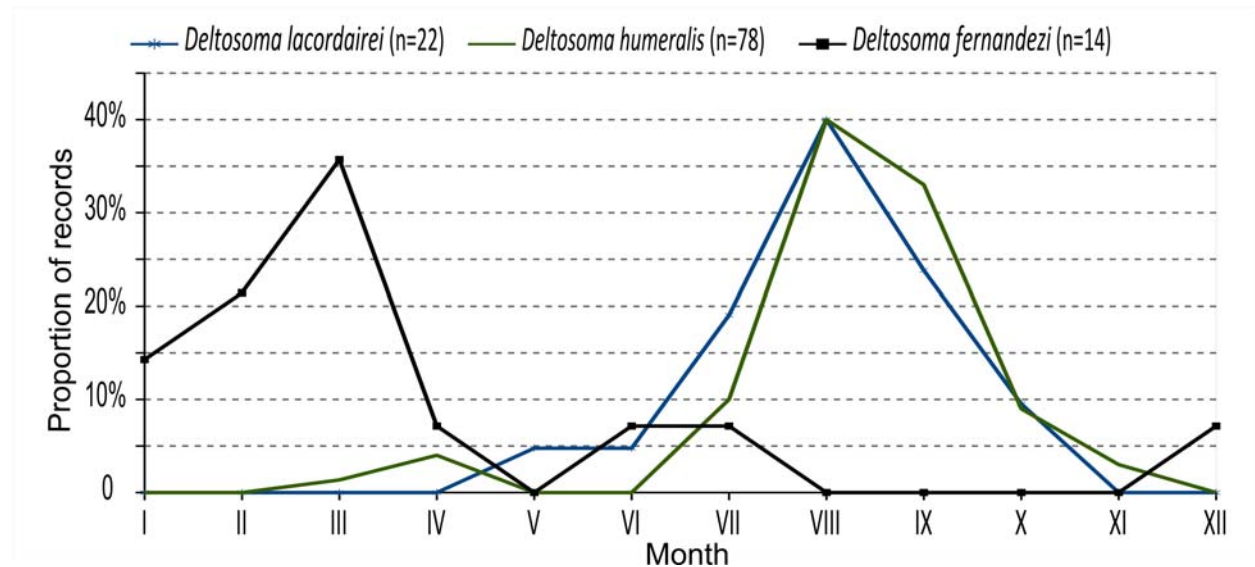
(Fig. 1, 2, 3, 10, 13, 14, map A)

Material examined: (23 specimens: 4 males and 19 females). Holotype female labeled from Cayenne, ex Coll. James Thomson, MNHN (fig. 13-14). **Kourou**, Montagne des Singes, female, 2-X-2006, emergence chamber, J. Touroult *leg.* (JTC); **Macouria**, Matiti ZA Wayabo, female, 12-VIII-2011, banana trap, J.-L. Giuglaris *leg.* (JLGC); **Roura**, Montagne des Chevaux, female, 10-VIII-2013, banana trap, SEAG *leg.* (PHDC); road to Kaw pk 16, female, 01-IX-2008, on leaf, P. Ducaut *leg.* (JLGC); **Régina**, Tibourou forest trail pk 7, female, 30-V-2006, emergence chamber, P.-H. Dalens *leg.* (PHDC); male, 7-VI-2006, P.-H. Dalens *leg.* (PHDC); forest trail of Bélizon pk 15+17, male, 23-VII-2006, emergence chamber, J.-L. Giuglaris *leg.* (JLGC); female, 29-VII-2006, J.-L. Giuglaris *leg.* (JLGC); RN2 pk 125 forest trail of Kapiri, male, 26-VII-2007, interception trap, J.-L. Giuglaris *leg.* (JLGC); male, 05-VII-2009, emergence chamber, J.-L. Giuglaris *leg.* (JLGC); **Nouragues NR** – Inselberg Station, female, 12-VIII-2010, flying, J. Touroult *leg.* (JTC); **Saül**, female, 14-VIII-1980, flying, M. Maylin *leg.* (IRD); Grand Boeuf Mort, four females, 15-IX-2007, wine trap, P.-H. Dalens *leg.* (PHDC); female, 10-X-2007, P.-H. Dalens *leg.* (PHDC); Montagne Pelée, four females, 15-VIII-2006, P.-H. Dalens *leg.* (PHDC); female, 19-VIII-2006, P.-H. Dalens *leg.* (PHDC).

Diagnosis. Species smaller than *D. humeralis* sp. nov. and *D. fernandezi* sp. nov. with elytra less expanded towards apex and rectilinear sides. Integument darker than in *D. humeralis* and lighter than in *D. fernandezi*. Head with coronal suture finely bordered with orangish setae and no vertex maculae. Antennae short in both sexes (segment XI barely surpassing elytral apex in males). Pronotum with lateral orangish margin rather narrow at anterior portion, the black maculae largely reaching anterior and posterior margins. Humeral maculae thin but surpassing elytral margins, with no discal extension. Transverse elytral band yellowish; elytral carinae rather strong. Legs black except base of femora and base of meso- and metatibiae.

Redescription. Male (Fig. 1, 3). **Head** prognathous, with fine, dense punctation; most of head and apex of mandibles black; remainder of head orangish toward base of antennal tubercles, vertex; underside of head orange; temples brown; mandibles orangish on inner side, laterally brown, black at apex. Last segment of palpi subcylindrical, barely flattened, truncate at apex. Labium notched with golden setae on anterior border. Clypeus weakly notched. Frons transverse, with narrow, transverse lateral dimples. Antennal tubercles brown, prominent, rounded. Coronal suture glabrous between upper ocular lobes, shortly bordered with orangish setae between antennal tubercles. Superior interocular space as wide as 3.5 times upper lobe thickness.

Antennae dark-brown; setae denser on antennomere III and on inner side of remaining antennomeres; antennomere XI surpassing elytral apex; scape conical; remainder antennomeres slightly flattened; III to VI slightly sulcate on dorsal side between two soft longitudinal carinae, with external side of apex slightly stretched into short spine. Antennal formula based on scape: I = 1.0; II = 0.2; III = 1.3; IV = 1.2; V = 1.4; VI = 1.3; VII = 1.2; VIII = 1.0; IX = 1.0; X = 0.9; XI = 1.0.



Graph 1. Phenology of the three species of *Deltosoma* of French Guiana.

Prothorax transverse (width/length = 1.7); sides regularly rounded; maximum width at second third of length. Pronotum orange, laterally with two large black bands; space between black bands distinctly wider on center of disc; margins with long, yellow setae; surface deeper and sparser punctate than head, mostly on basal half of disc; sexual punctuation distinct on lateral parts of disc. Scutellum orange, subquadrate, largely rounded at apex, covered with orangish setae. Prosternum orange with deep, sparse punctures, and golden setae. Hypomeron brown. Prosternal process as wide as procoxa, truncate at apex, ending before posterior limit of procoxae. Mesosternum orangish-brown on middle, laterally brown, finely punctate, with golden setae, laterally denser. Mesosternal process orange, as wide as mesocoxa, largely notched at apex. Metasternum orangish-brown on middle, orange near metacoxae, laterally darker. Posterior two-thirds of metasternal sulcus distinct.

Elytra relatively elongate (length/humeral width = 2.6) wider towards apex (maximum width/humeral width = 1.5), borders sub-rectilinear; surface flattened; disc slightly convex, with two longitudinal depressed carinae extending to distal five-sixths of elytron; pre-marginal space on sides and last sixth, entirely flat; punctuation slightly conspicuous; surface pubescent, with sparse, erect black setae; transverse band on elytra yellowish, wide, shortly serrated anteriorly and posteriorly; remainder of elytron dark-brown; margins with fringe of black setae, denser towards apex.

Legs reddish-brown with sparse, short golden setae; integument orangish close to articulations. Anterior tibiae distinctly curved and dorsally clearly carinate, thicker towards apex; meso- and metatibiae slightly curved. Femora orange on first third, swollen at middle. Ventriles finely punctate, gradually decreasing in length, with golden setae except on center of apical margins; last ventrite truncate at apex.

Aedeagus (fig. 10). Median lobe short and wide; apex rounded and obtuse. Parameres triangular with short and subparallel setae, decreasing on sides, apex slightly acuminate.

Female (fig. 2, 13). More robust shape (length/width at humeri = 2.7). Antennae shorter and segments broader. Prothoracic shape more triangular, laterally slightly less rounded.

Dimensions in mm (male/female): total length, 14.5-15.6/11.8-15.8; width at humeri, 4.3-4.6/3.5-4.7.

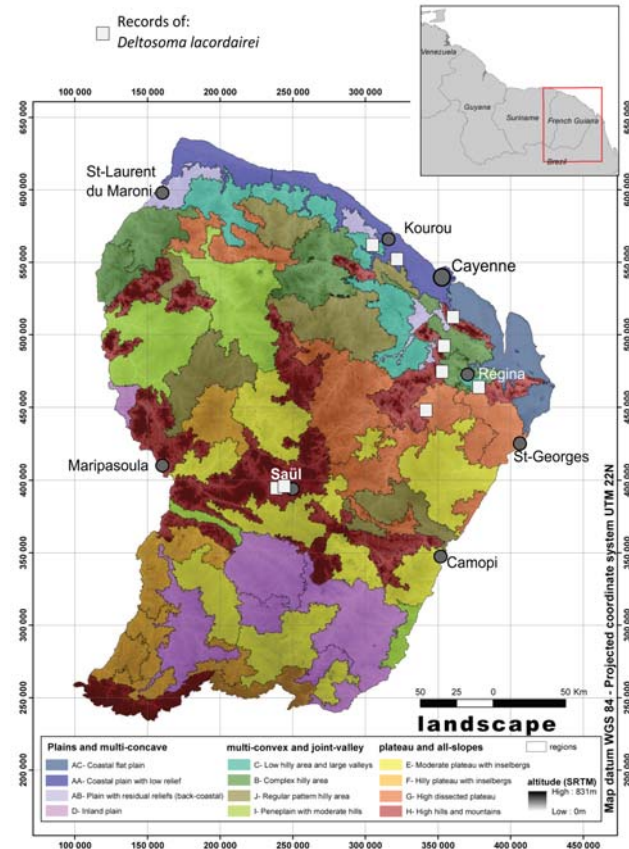
Phenology (graph 1): Species active during dry season (July – October), with 40% of data in August. Few specimens were obtained at the end of the rainy season (May – June) with emergence chambers, in which artificial environmental conditions can explain early emergence.

Chorology (distribution Map A). Discreet species with large distribution in French Guiana as well as near the shore and deeply into the south.

Deltosoma humeralis sp. nov.

(Fig. 4, 5, 6, 11, map B)

Type material: Holotype female from Montsinery, 20-VIII-1984, pineapple trap, C. Lestrade leg. (MNHN). Paratypes (78 specimens): 30 males, 48 females): **Sinnamary**, Petit-Saut road pk 30, male, VIII-2000, banana trap, Thibaut Rosant leg. (TRC). **Kourou**, Road to Degrad Saramaca pk 6, female, 12-IX-1992, sweetened wine trap, G. Duranton leg. (IRD); Montagne des Singes, female, 25-VIII-2006, banana trap, J. Touroult leg. (JTC); male, 24-IX-2006, banana trap, P.-H. Dalens leg. (PHDC); two females, 1-XI-2007, wine trap, J. Touroult leg. (JTC); Papinabo forest trail, male and four female, IX-2001, Yannig Ponchel leg. (TRC). **Macouria**, Matiti ZA Wayabo, male, 05-IX-2007, banana trap, J.-L. Giuglaris leg. (JLGC); one couple, 05-IX-2011, J.-L. Giuglaris leg. (JLGC); female, 15-VIII-2011, emergence chamber, J.-L. Giuglaris leg. (JLGC); male, two females, 07-VIII-2010, J.-L. Giuglaris leg. (JLGC); RN1 pk 19, female, 03-IX-1998, banana trap, J.-L. Giuglaris leg. (JLGC), female, 12-X-2000, J.-L. Giuglaris leg. (JLGC). **Matoury**, Mont Grand Matoury, male, 14-IX-2012, banana trap, P.-H. Dalens leg. (PHDC). **Roura**, Montagne des Chevaux, female, 02-X-2008, banana trap, SEAG leg. (PHDC); female, 21-X-2008, wine trap, SEAG leg. (PHDC); male, 26-VII-2010, banana trap, SEAG leg. (JTC); male, 27-VII-2010, flying, S. Fernandez leg. (PHDC); male, 8-VIII-2010, banana trap, SEAG leg. (JTC); female, 22-VIII-2010, banana trap, SEAG leg. (PHDC); female, 29-VIII-2010, SEAG leg. (PHDC); female, 26-IX-2010, SEAG leg. (PHDC); female, 2-VIII-2011, SEAG leg. (PHDC); male, 14-VIII-2011, SEAG leg. (PHDC); female, 21-VIII-2011, SEAG leg. (PHDC); two females, 30-VIII-2011, SEAG leg. (PHDC); male, 23-VII-2012, SEAG leg. (PHDC); two males, female, 29-VII-2012, SEAG leg. (PHDC); two females, 17-VIII-2012, SEAG leg. (PHDC); couple, 26-VIII-2012, SEAG leg. (PHDC); male, 2-IX-2012, SEAG leg. (PHDC); male, 7-X-2012, SEAG leg. (PHDC); male, 6-VII-2013, banana trap, SEAG leg. (PHDC); couple, 3-VIII-2013, banana trap, SEAG leg. (PHDC); two males, one female, 10-VIII-2013, banana trap, SEAG leg. (PHDC); male, 17-VIII-2013, pineapple trap, SEAG leg. (PHDC); road to Kaw pk 29, female, 1-IV-2008, emergence chamber, P.-H. Dalens leg. (PHDC); male, 15-VIII-2008, P.-H. Dalens leg. (PHDC); pk 46, female, 6-IX-1986, light trap, G. Tavakilian leg. (IRD); road to Kaw pk 40, female, 02-VIII-2010, banana trap, J.-L. Giuglaris leg. (JLGC). **Régina**, forest trail of Bélizon pk 15+17, female, IX-2005, emergence chamber, J.-L. Giuglaris leg. (JTC); female, 05-VII-2005, banana trap, J.-L. Giuglaris leg. (JLGC); pk 24, two females, 15-VIII-1999, wine trap, J.-L. Giuglaris leg. (PHDC); RN2 pk 125, forest trail of Kapiri, two males, 27-VIII-2009, banana trap, J.-L. Giuglaris leg. (JLGC); two females, 17-IX-2009, J.-L. Giuglaris leg. (JLGC); female, 28-III-2010, emergence chamber, J.-L. Giuglaris leg. (JLGC). **Nouragues NR** – Pararé Station, one couple, 8-IX-2009, high banana trap, SEAG leg. (PHDC); male, three females, 8-IX-2009, medium banana trap, SEAG leg. (PHDC); female, 22-IX-2009, high banana trap, SEAG leg. (PHDC); male, 30-IX-2009, medium banana trap, SEAG leg. (PHDC). **Saül**, Grand Boeuf Mort, male, 15-IX-2007, wine trap, P.-H. Dalens leg. (PHDC); two females, 10-X-2007, P.-H. Dalens leg. (PHDC); one couple, 19-IV-2008, emergence chamber, P.-H. Dalens leg. (PHDC); Montagne Pelée, female, 12-X-2007, wine trap, P.-H. Dalens leg. (PHDC).



Map A. Distribution map in French Guiana (from Guitet et al. 2013) of *Deltosoma lacordairei* Thomson, 1864.

Diagnosis. Relatively large species. Sides of elytron enlarged toward apex with slightly sinuous sides. Integument lighter than other species. Antennae longer, segment IX surpassing elytral apex. Pronotum with wide orange margins, black maculae not reaching anterior and posterior margins. Elytra with large humeral maculae with discal extension (sometimes reduced or absent), transverse band orangish, elytral carinae rather soft. Legs with basal half and apex of femora orange, base of tibiae orange.

Description. Male (Fig. 4, 6, 11). Coronal suture bordered with orangish setae toward upper interocular space, followed by triangular orangish macula on vertex. Underside of mandibles brown with black apex. Antennae long, surpassing apex by more than two segments; segment VII the longest (XI excepted). Antennomeres III-VI subcylindrical, elongate; antennal sulcus distinct from antennomere III to VI, dorsally with two clear longitudinal carinae on dorsal side. Antennal formula based on scape: I = 1.0; II = 0.2; III = 1.3; IV = 1.2; V = 1.4; VI = 1.5; VII = 1.5; VIII = 1.4; IX = 1.4; X = 1.4; XI = 2.1.

Prothorax transverse (width/length = 1.8); sides rounded, especially at basal two-thirds, with discreet angle at second third of length. Pronotum with lateral black bands large, orange space between them slender, barely enlarge at center of disc, but more distinctly anteriorly and posteriorly. Prosternal process notched at apex. Central part of mesosternum orange, laterally brown. Remainder of underside brownish, with moderately dense golden setae. Scutellum trapezoidal with rounded apex.

Elytra relatively elongate (length/humeral width = 2.3), enlarged towards apex (maximum width/humeral width = 1.5); elytral carinae slightly depressed. Humeral macula large, connected to circular pre-sutural macula, slightly surpassing the two longitudinal carinae on their inner and outer limits. Transverse band clearly orangish, distinctly serrate, particularly on its posterior limit.

Basal and apical third of femora orangish. Protibiae distinctly curved and enlarged at apex; mesotibiae moderately curved; metatibiae almost rectilinear. Aedeagus (Fig. 11). Median lobe relatively elongate, notched at apex. Parameres with unique tubercle, its sides parallel, with long and parallel setae.

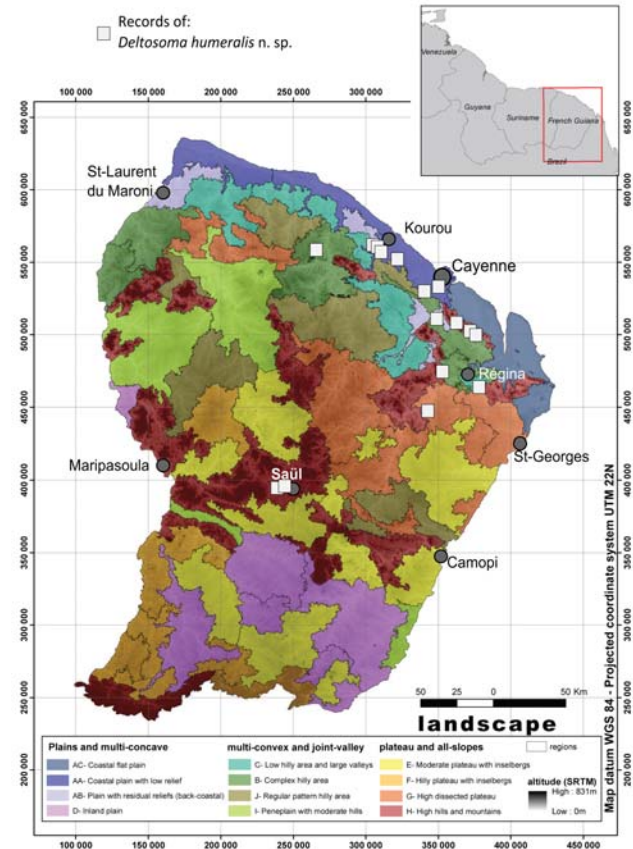
Female (Fig. 5). Robust (Prothoracic width/length = 1.9; elytral width at humeri/length = 2.5). Antennae much shorter than in male, barely reaching distal fifth of elytra. Segments broader. Prothoracic shape more triangular, laterally less rounded.

Dimensions in mm (male/female): total length, 15.5-18.6/13.5-19.8; width at humeri, 4.9-5.9/4.4-6.4.

Phenology (graph 1). Species active in dry season (July – October), with 40% of data in August. Kolmogorov-Smirnov test shows a great similarity of repartition during the year with *D. lacordairei* ($D = 0.07$, $p = 0.12$). As for the previous species, some early outbreaks (March – April) can be awarded to emergence chambers.

Chorology (distribution Map B). Uncommon species largely distributed in French Guiana.

Etymology. The name refers to the developed humeral maculae of this species.



Map B. Distribution map in French Guiana (from Guitet et al. 2013) of *Deltosoma humeralis* sp. nov.

***Deltosoma fernandezi* sp. nov.**

(Fig. 7, 8, 9, 12, map C)

Type material: Holotype female from Saül, Montagne Pelée, 22-III-2011, bait trap (banana trap in high position), SEAG leg. (MNHN). Paratypes (13 specimens: 11 females, 2 males): **Roura**, Montagne des Chevaux, female, 22-VII-2010, banana trap, SEAG leg. (PHDC). **Nouragues NR** – Pararé Station, female, 11-XII-2009, high banana trap, SEAG leg. (PHDC); female, 12-II-2010, SEAG leg. (PHDC); male, 16-III-2010, banana trap, SEAG leg. (PHDC); female, 9-IV-2010, medium banana trap, SEAG leg. (JLGC); female, 15-V-2010, FIT, SEAG leg. (JTC). **Saül**, Grand Boeuf Mort, female, 7-II-2007, wine trap, P.-H. Dalens leg. (PHDC); Montagne Pelée, female, 17-I-2011, banana trap, P.-H. Dalens leg. (PHDC); male, 14-II-2011, high banana trap, female, 30-III-2011, low banana trap, P.-H. Dalens leg. (PHDC); female, 20-V-2011, high banana trap, P.-H. Dalens leg. (PHDC); female, 1-VI-2011, P.-H. Dalens leg. (PHDC). **Maripasoula**, Mont Itoupé (830m), female, 12-III-2010, flying, P.-H. Dalens leg. (PHDC).

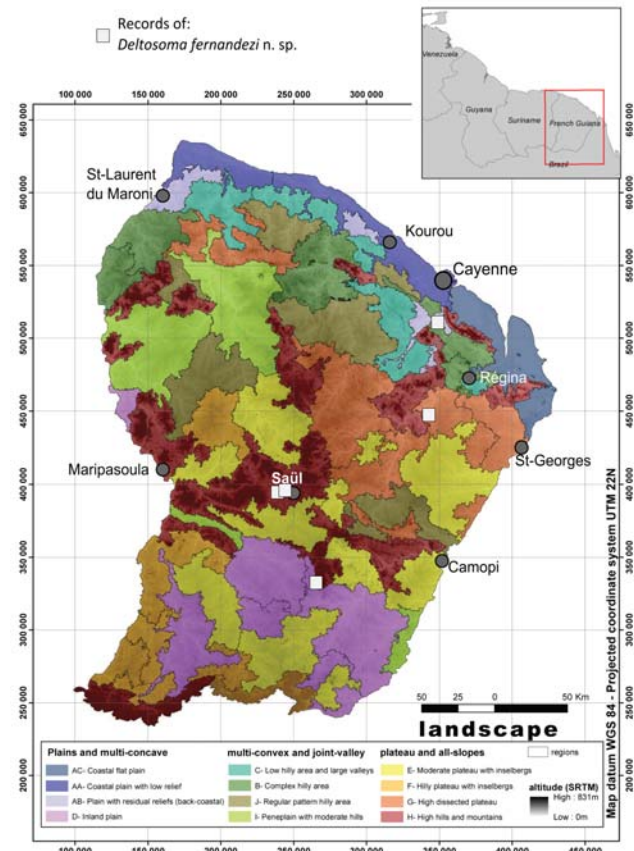
Diagnosis. Relatively large species (size close to *D. humeralis*). Antennae longer than *D. lacordairei* but shorter than *D. humeralis* (antennomere X surpassing elytral apex). Elytra clearly enlarged towards apex and with sinuous sides, apex flattened and edges raised. Deep black integument with dark blue reflections. Longitudinal stripe across pronotum thinner, humeral maculae very narrowed, with no discal extension. Transverse band whitish, with limits more regular. Legs completely black, except base of femora.

Description. Male (Fig. 7, 9, 12). **Head** completely black, with golden setae on clypeus. Coronal suture bordered with few golden setae. Underside of mandibles black. Palpi dark-brown with lighter apex. Mentum, submentum and most part of gula dark-brown. Antennae surpass elytral apex by two segments, totally black. Dorsal sulcus on segments III to VI discreet, softly carinate. Antennomere III longest. Antennomere VIII shortened. Antennal formula based on scape: I = 1.0; II = 0.2; III = 1.4; IV = 1.1; V = 1.2; VI = 1.3; VII = 1.3; VIII = 1.2; IX = 1.3; X = 1.2; XI = 1.6. Antennomere XI curved at distal third.

Prothorax transverse (width/length = 1.7), nearly black. Pronotum bordered with orangish. Sagittal stripe orangish and interrupted before middle; posterior half with small carinae covered with whitish setae; sexual punctation deep on lateral parts of disc; sexual setation orange on lateral margins. Scutellum subquadrate, apex rounded, brown, with yellowish setae on basal half.

Elytra moderately elongate (length/humeral width = 2.5), distinctly enlarged toward apex (maximum width/humeral width = 1.8), with sinuous sides; color deep black with dark-blue reflections; humeral macula very thin, limited to the border; depressed carinae discreet; transverse band whitish, its limits regular, especially on anterior side; apex slightly elevated.

Legs black except trochanters orangish; protibiae moderately curved, enlarged at apex; mesotibiae moderately curved; metatibiae slightly curved. Underside most dark-brown, with denser golden setation, especially on sides. Prosternal process truncate with dense golden setae at apex; mesosternal process widely notched.



Map C. Distribution map in French Guiana (from Guitet et al. 2013) of *Deltosoma fernandezi* sp. nov.

Aedeagus (Fig. 12). Median lobe short and large, apex rounded. Parameres with rectangular unique tubercle, apex truncate with divergent setae of diverse length.

Female (Fig. 8). Robust (Prothoracic width/length = 1.9). Antennomeres broader and shorter, barely reaching elytral last fifth. Prothorax slightly more triangular, less rounded on lateral sides.

Dimensions in mm (male/female): total length, 16.5-19.1/16.8-21.4; width at humeri, 4.9-5.3/5.0-6.3

Phenology (graph1). Species active during the rainy season (December – July), with 36% of data during March. Kolmogorov-Smirnov test shows a great difference of repartition during year compared to the two previous species ($D = 0.78$, $p = 0.0001$).

Chorology (distribution Map C). Rare species mostly found in high hills or mountain areas.

Etymology. This species is dedicated to Serge Fernandez, specialist of Riodinidae (Lepidoptera), for his contribution to the knowledge of Neotropical Cerambycidae.

Conclusions

Comparison of the holotype of *D. lacordairei* with a large series of specimens permitted us to clarify the situation of French Guiana's species. However, a systematic review of the entire genus in South America is necessary to determine the status of the other species of this genus.

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fig.1



fig.2



fig.3



fig.4



fig.5



fig.6



fig.7



fig.8



fig.9

Figures 1-9. 1) *Deltosoma lacordairei* Thomson, 1864, male dorsal habitus, 2) *Deltosoma lacordairei* Thomson, 1864, female dorsal habitus, 3) *Deltosoma lacordairei* Thomson, 1864, male underside. 4) *Deltosoma humeralis* sp. nov., paratype male dorsal habitus. 5) *Deltosoma humeralis* sp. nov., holotype female dorsal habitus, 6) *Deltosoma humeralis* sp. nov., paratype male underside. 7) *Deltosoma fernandezi* sp. nov., paratype male dorsal habitus. 8) *Deltosoma fernandezi* sp. nov., holotype female dorsal habitus, 9) *Deltosoma fernandezi* sp. nov., paratype male underside.



fig.10



fig.11



fig.12



fig.13



fig.14

Figures 10-14: Two species of *Deltosoma*. **10)** *Deltosoma lacordairei* Thomson, 1864, aedeagus. **11)** *Deltosoma humeralis* sp. nov., aedeagus. **12)** *Deltosoma fernandezi* sp. nov., aedeagus. **13)** *Deltosoma lacordairei* Thomson, 1864, holotype dorsal habitus. **14)** *Deltosoma lacordairei* Thomson, 1864, holotype labels.

